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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,606	08/25/2003	S. Brandon Keller	100111233-1	2818

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

SIEK, VUTHE

ART UNIT	PAPER NUMBER
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2825

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/647,606	KELLER ET AL.	
	Examiner	Art Unit	
	Vuthe Siek	2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/6/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to application 10/647,606 filed on 7/5/2005.

Claims 1-17 remain pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2003/0221173).

4. As to claims 1, 5, 7, 10, 13 and 17, Fisher teaches a method and apparatus (a software tool) for detecting connectivity conditions in a netlist (hierarchical netlist) described in block description language file stored in a database (Fig. 1-3 and its description). The hierarchy of the netlist data file is traversed and nets and leaf cells are identified. Connections between nets and leaf cells are identified. Therefore, determinations are made as to whether the leaf cells are properly connected to their respective nets. The file describes CHIP_TOP 40 and go down the hierarchy until only leaf cells are found by making a list of all non-leaf cell blocks in the design (example of blocks 41 and 42) and making a list of all nets for each of the non-leaf cell blocks

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connected (externally and internally of each non-leaf cell block). Once all of the nets have connected for each of the non-leaf cell blocks, the tool loops through all nets associated with each non-leaf cells and builds a list all leaf cells (lower level of the hierarchy) connected to each net (0020-0023). For each leaf cell connected to a net, a determination is made as to whether or not any of the aforementioned connectivity issue exist (examples of connectivity issues are described in 0026). Accordingly, Fisher teaches traversing hierarchical interface connection in a plurality of hierarchical blocks by performing for each block instance including for each port instance on the each block instance and for each port in each of the hierarchical blocks to determine whether there are connectivity issues. Since Fisher teaches the determinations are then used to correct connectivity issues that may exist (see abstract), generating a warning indicating the name of the port and port instance that are not connected is within the scope of Fisher's patent application publication because the warning must be used as an indication of connectivity issues to designers.

5. As to claims 2-4, 6, 8-9, 11-12 and 14-16, Fisher teaches traversing the hierarchical netlist file of an IC design from top down manner (initialization from top to lower level of the hierarchy) in order to determine connectivity issues and the determinations are used by designers (user terminal) to correct the connectivity issues that may exist (Fig. 2-3 and its description; see summary).

Remarks

6. Applicants argued that the claimed limitations are not obvious over the teachings of Fisher. Examiner disagrees. Fisher teaches a method and apparatus for analyzing

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connectivity conditions in the hierarchy of a netlist data file. The hierarchy of a netlist is shown in Fig. 2 (0020, 0022). The method begins to traverse the hierarchy of the netlist data file and nets and leaf cells are identified. Once the connections between nets and leaf cells have been identified, determinations are made as to whether the leaf cells are properly connected to their respective nets. Connectivity conditions are described in the patent publication (0015) and identified by analyzing the connections between nets and leaf cells. A message report is issued as a result of the determinations. Applicants argued that Fisher does not teach or suggest for each port instance on each block instance, determination is made whether the port instance is properly connected. Examiner disagrees. Fisher teach many connectivity conditions are identified, where the conditions include 1) zero-connects, which are unconnected block port; 2) one-connects, which are ports of the leaf cells in the design that do not connect to other leaf cells in the design; 3) gate-only nets, which are unconnected inputs to logic; 4) floating net, which is when a given net connects to zero leaf cells; 5) port direction mismatches, which is when a given net is ported and the direction of that port is different from the direction of the leaf cell(s) to which it is connected; and 6) drive fights, which correspond to a net driven by two or more cells of different type. During traversing the hierarchy of a netlist as shown in Fig. 2, the defect detection software tool reads the top level block of the hierarchy of the netlist file, then down the hierarchy until only leaf cells are found. The tool makes a list of non-leaf cell blocks, then loops through all of the listed non leaf cells, makes a list of nets for each of the non leaf cell blocks. Once all of the nets have been collected for each of the non-leaf cells, the tool loops through all nets associated

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with each non-leaf cells and build a list of all leaf cells connected to each net. For each leaf cell connected to a net, a determination is made as to whether or not any connectivity conditions issues exist and then issuing report for any connectivity defect. As one can clearly see from the hierarchy of the netlist (Fig. 2), for each non-leaf cell block (BLK_A41, BLK_B 42), there exist port instances connected by a net. Even though Fisher teaches making a list of all nets for each of the non-leaf cells, making a list of all port instances for each of the non-leaf cells is too obvious to one ordinary skill in the practical art, because this would provide the same result as admitted by applicants. Therefore, making a list of all nets for each non-leaf cells or making a list of all port instances are interchangeable because it provide the same result. The claimed limitations are too obvious to one of practitioners in the art, even one does not know the art would realize that making a list of all port instances would be obvious from the teachings of Fisher because a net is connected to a port. Whether listing a port instance first or listing a net first, the determination of connectivity conditions provide the same result. There is no improvement. The claimed limitations are too obvious and should not be patentable.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vuthe Siek whose telephone number is (571) 272-1906. The examiner can normally be reached on Increase Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vuthe Siek


VUTHE SIEK
PRIMARY EXAMINER